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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,113	07/11/2001	Katsuhiko Mochizuki	1232-01	7939

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EXAMINER

BOYD, JENNIFER A

ART UNIT PAPER NUMBER

1771

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/889,113	Applicant(s) MOCHIZUKI ET AL.	
	Examiner Jennifer A. Boyd	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 12-19, 21, 22 and 24-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-19, 21-22, 24-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Applicant's Amendments and Accompanying Remarks, filed August 24, 2005, have been entered and have been carefully considered. Claims 1 and 15 are amended, claims 10 – 11, 20 and 23 are cancelled and claims 1 – 9, 12 – 19, 21 – 22 and 24 – 28 are pending. In view of Applicant's amendment to claim 15, the Examiner withdraws the 35 USC 112, second paragraph rejection as detailed in paragraph 4 of the Office Action dated May 20, 2005. In view of Applicant's amendment to claim 1 requiring that the yarn is produced by a particular method, the Examiner has revised the previously applied rejection below. In view of Applicant's amendment to claim 15 requiring that the drawing is performed between the first heated roll and second heated roll and that the relaxation heat treatment occurs at the second heated roll, the Examiner withdraws the previously set forth rejection of claims 15 – 19, 21 – 22 and 24 under 35 USC 103 as being unpatentable over Chuah (EP 0745711 A1) in view of Rowan et al. (US 4,851,172) as detailed in the previous Office Action. The invention as currently claimed is unpatentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. Claims 1 – 9 and 12 - 14 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

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applicant regards as the invention. The details of the rejection can be found in paragraphs 2 - 3 of the previous Office Action dated February 5, 2003. The rejection is maintained.

Claim Rejections - 35 USC § 103

4. Claims 1 – 9, 12 – 13 and 25 – 28 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (EP 1033422A1). The details of the rejection can be found in paragraph 6 of the Office Action dated January 13, 2005 and paragraph 6 of the Office Action dated May 20, 2005. The rejection is maintained.

Claim 1 has been amended to require the that the “yarn is produced by: spinning at a rate of at least 2000 m/min, drawing at a low draw rate by means of a first and second heated roll, heat-treating plural laps of the yarn at the second heated roll with a surface roughness of 1.5 S to 8 S at 105 to 180 degrees Celsius, heat treating for relaxation at a relaxation factor of 6 to 20% and subjecting to an interlacing treatment”.

Fujimoto teaches winding the multifilaments at a rate of 300 to 3,500 meters/min, drawing the multifilaments around a first and second rolls both heated and drawn at a ratio of 1.3 to 1.4, subjecting the multifilament to an interlacing treatment and relaxing the multifilaments [0035] – [0043]. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same or an obvious variant from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the Applicant to show unobvious

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differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (EP 1033422A1) in view of Matsuo (JP 11-100747). The details of the rejection can be found in paragraph 9 of the previous Office Action dated February 5, 2003. The rejection is maintained.

6. Claims 15 – 19, 21 – 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto (EP 1033422A1) in view of Rowan et al. (US 4,851,172).

Fujimoto teaches a polyester fiber with excellent processability and process for producing the same (Title).

As to claims 15 and 16, Fujimoto teaches a method of producing a poly (trimethylene terephthalate) fiber where the yarn is drawn, heat treated and then subjected to a relaxation treatment [0035]. The intrinsic viscosity of the polymer is 0.4 – 1.5, preferably 0.7 – 1.2 [0016] as required by claims 15 and 16. In the process, the multifilaments are extruded from a spinning machine [0035] and wound round a first roll heated at 30 – 80 degrees Celsius and then a second heated roll at 100 to 160 degrees Celsius [0038]. The yarn is relaxed between the second and third rolls [0043]. In particular, the Applicant's attention is directed to Example 13 [0083]. In Example 13, a poly (trimethylene terephthalate) fiber comprising PTT (intrinsic viscosity = 0.7) having 2% by mole copolymerized 5-sodium sulfoisophthalic acid was produced at a spinning rate of 3520 m/min (see Table 1, Example 13) at a draw ratio of 2.20 (see Table 1 continued, Example 13) where the relaxation ratio is 0.88 (see Table 1 continued, Example 13), which is

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equivalent to 12%. The Examiner considers a draw ratio of 2.20 to be a “low” draw rate as required by Applicant. It should be noted that Fujimoto mentions that the fiber yarn may be mixed by methods such as interlacing before incorporating the yarn into fabric [0045].

As to claim 17, Fujimoto teaches that multifilaments are extruded from a spinning machine at a temperature from 250 – 290 degrees Celsius [0033], which is 22 – 62°C higher than the melt temperature.

As to claims 18 and 22, Fujimoto teaches that the fibers are drawn on the first roll heated at 30 – 80°C having a peripheral speed of 300 to 3,500 m/min without winding thereon [0035]. The draw temperature is -15 – 35°C higher than the glass transition temperature of poly(trimethylene terephthalate) which is 45°C.

As to claim 19, Fujimoto teaches in Example 13 that the relaxation ratio is 0.88 (see Table 1 continued, Example 13), which is equivalent to a relaxation factor of 12%.

As to claim 23, Fujimoto teaches that the fibers have the relaxation heat treatment performed on the second and third rolls at temperatures 100 – 160°C and 120 - 150°C respectively (page 8, lines 25 – 55).

As to claim 24, Fujimoto teaches that the draw ratio can be 2.20 in Example 13. The Examiner considers a draw ratio of 2.20 to be a “low” draw rate as required by Applicant.

Fujimoto fails to teach that the second heated roll used for the relaxation treatment has a surface roughness of 1.5 S – 8 S as required by claim 15 and the second heated roll has a surface roughness of 3.2 S – 6.3 S as required by claim 21.

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Rowan is directed to a process for high speed, multi-end polyester yarn (Title). Rowan teaches manufacturing a multi-filament yarn by extruding, passing the filaments through drawing rolls, then through relaxing rolls and then finally through a conventional air interlacing jet and then wound up (columns 2 and 3). Rowan teaches that the relaxing rolls 7 and 8 can have a matte finish and have a temperature of at least 140 degrees Celsius (column 4). The surface finish value for the rolls can be between 35 and 120 microinches (0.89 – 3.0 micrometers) (column 4, lines 10 – 20). On page 14 of Applicant's Specification, Applicant indicates that 1.5S – 8S is equivalent to 0.8 – 6.3 micrometers as required by claims 15 and 21. Rowan notes that the yarn relaxes between 1 – 10 percent between rolls 5 and 7 (column 4, lines 1- 20). Rowan suggests that the use of heated matte rollers produce a yarn with excellent mechanical qualities (column 4, lines 25 – 40).

Since Fujimoto lacks disclosure to specific details about the surface roughness of the second heated roller, it would have been necessary and thus obvious for one of ordinary skill in the art practicing the invention of Fujimoto to look to the prior art as exemplified by Rowan to provide the details of the relaxation roller. As heated matte rollers having a temperature of at least 140 degrees Celsius and a surface finish value of 0.89 – 3.0 micrometers which has a relaxation between 1 – 10 percent produces a yarn with excellent mechanical qualities, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the heated matte finish relaxation rollers of Rowan in the invention of Fujimoto, motivated by the expectation of successfully practicing the invention of Fujimoto.

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As to claim 15, Fujimoto teaches the claimed invention except fails to disclose that the CF value is 1 – 30. However, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the CF value in order to create stable and strong yarn with high resistance to breakage since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454 USPQ 233 (CCPA 1955).

As to claims 15 and 24, Fujimoto in view of Rowan fails to teach that the polyester yarn has a breaking extension of 40% or more as required by claim 15 and a strength from a stress/strain curve of at least 3cN/dtex and a breaking extension of at least 42% as required by claim 24. Although Fujimoto in view of Rowan does not explicitly teach the claimed properties as described above, it is reasonable to presume that the said properties are inherent to Fujimoto in view of Rowan. Support for said presumption is found in the use of like materials (i.e. a multi-filament yarn polytrimethylene terephthalate yarn having an intrinsic viscosity between 0.8 – 1 made by the process of extruding filaments, cooling the filaments, converging the filaments, drawing the filaments on rollers, drawing at a low ratio, relaxing the yarn and then interlacing) which would result in the claimed properties. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties mentioned above would obviously have been present once the Fujimoto in view of Rowan product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Response to Arguments

7. Applicant's arguments filed August 24, 2005 have been fully considered but they are not persuasive.

In response to Applicant's arguments that claims 1 – 9 and 12 - 14 are in compliance with 35 USC 112, the Examiner respectfully argues the contrary. The only chemical and structural limitations in claim 1 is a multi-filament yarn comprising polytrimethylene terephthalate with a CF value of 1 - 30. The other limitations of claim 1 such as strength, Young's modulus, elastic recovery, breaking extension and CV value are properties which a direct result of chemical and structural limitations. Therefore, if the Applicant believes that the properties of his invention such as the strength, Young's modulus and elastic recovery of the polytrimethylene terephthalate yarn differ from the yarn of Fujimoto, the Applicant must recite the additional chemical and structural limitations which differentiates his invention from Fujimoto or any other invention that comprises a multifilament polytrimethylene yarn and include those limitations in claim 1. If the said properties are not inherent, it is asserted that the claim must be incomplete. In other words, if the Applicant asserts a lack of inherency in the admitted prior art, then the Applicant's claimed invention is missing an element critical to the invention which would patentably distinguish it from the known prior art. Additionally, claims 2 – 9 and 12 - 14 are dependent on claim 1 and do not add sufficient chemical and structural limitations to differentiate it from Fujimoto. Therefore, the Examiner assumes inherency for those physical properties as well until the Applicant chemically or structurally differentiates his invention which would provide for the set forth physical limitations. Applicant further argues that the characteristics are not inherent in the prior art as demonstrated by the differences in the process in producing the polyester multifilament

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yarn of claim 1 and the processes of the prior art. As noted in the rejection above, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The burden has been shifted to the Applicant to show unobvious differences between the claimed product and the prior art product.

It should be noted that Applicant has failed to argue the rejection of claims 1 – 9, 12 – 13 and 25 – 28 under 35 USC 103 over EP '422 and the rejection of claim 14 over EP '422 in view of JP '747. The Examiner has maintained the rejections. Please see the above rejection for details.

Applicant argues that one of ordinary skill in the art would not be motivated to combine EP '711 and US '172. In view of Applicant's amendments to claim 15, the Examiner has applied a new rejection above. Please see the above rejection for details. In regards to the secondary reference, US '172, which has again been applied in the rejection of claim 15 and its dependent claims, the type of polyester employed is irrelevant. US '172 is used as prior art to demonstrate that it would be obvious to use textured heated rollers to produce a yarn with excellent mechanical properties. The burden is upon the Applicant to show that textured heated rollers as discussed in US '172 could not be used in Fujimoto.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

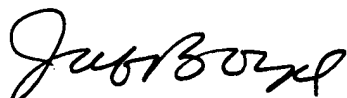
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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer Boyd
November 8, 2005

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11/9/05